CHINESE / ENGLISH VOCABULARY LEARNING TOOL

FIELD OF THE INVENTION

The present invention is directed to a method for helping teach Chinese, English, and Pin

5   Yin vocabulary.

BACKGROUND OF THE INVENTION

Sino-Tibetan based languages, such as Chinese, are vastly different than Latin based

languages such as English. The Chinese language does not contain an alphabet. Instead, the

10   Chinese language comprises more than 60,000 individual characters. Each of the 60,000

characters has a different meaning. Knowledge of about 1,200 characters is sufficient to read a

Chinese newspaper. Chinese college graduates know about 3,000 characters.

Chinese also differs from Latin based languages in the concept of a word. In Chinese,

strings of characters do not contain spaces and the interpretation of where one word ends and

15   another starts is entirely based on context. Chinese characters are very precise in meaning,

pronunciation, and in the way they are written. If a Chinese character has characters added to it

in a string, the meaning of the first character is enhanced, but normally it is not changed.

Chinese characters are always pronounced as a single syllable. There are no two-syllable

Chinese characters. Each Chinese character has one of five fundamental sounds. These five

20   fundamental sounds give a singing quality to Chinese because some characters are pronounced

with high tones, some with low tones, and some with tones that are rising or falling. Tone is

fundamental to the language and Chinese would not be readily understood without the tones. For

example, the character "ma" can either mean "mother" or "horse" or a "question" depending the

tone. In China many dialects are spoken. Spoken words are almost unintelligible from one

dialect to the next. However, there is only one written Chinese. Written Chinese is understood

by all dialects. Other Sino-Tibetan languages such as Japanese, Korean, and Vietnamese use

several characters common to Chinese. However, these languages have no common written or

spoken meaning, similar to the manner in which English, Spanish, and French use a common

5   alphabet but are not otherwise interchangeable.

        Following the Chinese Communist revolution in 1949, the Communist party made

several changes to the Chinese language. First, the traditional method of writing Chinese from

"top to bottom" and "right to left" was abandoned. The Peoples' Republic of China (PRC or

mainland China) now follows Western languages and is written from "left to right" and then "top

10   to bottom." Second, a single dialect was chosen, Mandarin, which is now taught in all schools as

the primary Chinese language. Third, the PRC altered about one quarter of the characters to

reduce them to around seven lines or strokes. This form of Chinese is called "Simplified

Chinese." In the PRC, Simplified Chinese is now widely used, but the Republic of China (ROC

or Taiwan) and Hong Kong still use the more elaborate form of Chinese called "Traditional

15   Chinese." The PRC also adopted the Hindu-Arabic numbering system used by most Western

countries and the advent of the Internet is causing English to appear in many Chinese sentences.

        The PRC also introduced "Pin Yin," a phonetic version of Chinese to help young children

learn the language. Pin Yin uses the 26 letters of the English alphabet plus 4 accents over certain

vowels to indicate how the character should be pronounced. Pin Yin is normally used from

20   about 4 years of age until around 7 years of age when the students are taught to use Chinese

Characters. Pin Yin is also very helpful for tourists and businessmen to speak Chinese from

phrase books. Additionally, Pin Yin is popular with computer users as it is the easiest way to

enter Chinese characters from a keyboard.

In the computer, all Sino-Tibetan languages are represented by 16-bit characters, while English and the other Latin languages are normally represented by 8-bit characters. Traditionally, separate encodings were produced for each of the languages. English uses a 7 bit encoding called ASCII. ASCII encoding is included as the first seven bits of all the other

5 encodings. European languages are normally 8 bit encodings and make use of the eighth bit for their special characters. Simplified Chinese uses GB2312 encoding and Traditional Chinese uses Big 5 encoding. A computer using Big 5 encoding cannot read computer code in GB2312. This multiplicity of encodings is confusing and there is no standardization between the different encodings. The Unicode consortium has developed a single encoding that incorporates all the

10 major languages of the world. There is a strong movement to use Unicode and replace all the other encodings in computer applications. Unicode uses 16 bits for each character inside the computer. Unicode has 65,000 different characters and each of the major languages is mapped into a different section of this Unicode range. Consequently, Unicode can be used as a single encoding scheme for all of the world's languages.

15 Chinese characters are encoded entries which can be displayed in different font sizes. In other words, a computer may display the Chinese characters in different sizes similar to the method by which a computer displays English characters and words in different font sizes using ASCII. Changing the font size is very beneficial to students studying Chinese because the students may see the Chinese characters in greater detail.

20 Individual characters, letters, or symbols can be represented using different schemes within Unicode. Two of the most popular encoding schemes are UTF-8 and UCS-2. UTF-8 is a byte based Unicode encoding scheme which represents each character, letter, or symbol as one, two, or three bytes, each byte being eight bits. In contrast, UCS-2 is 16 bit encoding scheme

which represents each character, letter, or symbol as 16 bits or four hexadecimal digits. One

hexadecimal digit is equivalent to 4 bits, and 1 byte can be expressed by two hexadecimal digits.

Table 1 below displays the difference between UTF-8 and UCS-2.

UCS-2 (Hexadecimal)	UTF-8 (Binary)	Description
0000 007F	0xxxxxxx	ASCII
0080 07FF	110xxxxx 10xxxxxx	Up to U+07FF
0800 FFFF	1110xxxx 10xxxxxx 10xxxxxx	Other UCS-2

Table 1

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A user may choose to encode using the UCS-2 scheme or the UTF-8 scheme depending on the

user's expected needs. For example, when transmitting data from one location to another, or

when storing data in a database, UTF-8 is the preferred encoding scheme due to the transmission

efficiency and the storage efficiency inherent in variable byte stream length (i.e. 1-3 bytes, as

10 shown in Table 1). However, when holding the same information in a memory, UCS-2 is the

encoding scheme. Conversion functions between UCS-2 and UTF-8 are available as evidenced

by United States Patent Application Publication 2003/0078921 entitled "Table-Level Unicode

Handling in a Database Engine," incorporated herein by reference.

Prior to the development of Unicode, a computerized character translator between

15 Simplified Chinese and Traditional Chinese within the same encoding was impossible because of

the inability of GB2312 code to understand Big 5 code, and vice-versa. If the user desired a

computer-implemented translation, multiple encodings had to be used which did not permit

simultaneous display of both forms of data.

Similarly, the prior art translation programs have been unable to display Pin Yin with the

20 proper accents. Typically, these programs would use pictures in the form of gifs or jpegs to

represent the characters. The accented vowels indicate the proper tone and are essential to proper

pronunciation of Pin Yin. One technique that uses only the ASCII characters is based on adding

a number after the Pin Yin word to indicate the accent as illustrated in Table 2.

Number	Accent	Description	Examples
1	ˉ	Level Tone	ā ē ī ō ū
2	´	Rising Tone	á é í ó ú
3	ˇ	Falling Tone, then Rising Tone	ǎ ě ǐ ǒ ǔ
4	`	Falling Tone	à è ì ò ù
5	(None)	No Change in Tone	a e i o u

Table 2

Thus, the prior art would display the word guó as guo2, the word mā as ma1, and so forth. The

5   prior art hybrid version of Pin Yin is difficult for the beginning reader to understand because the

reader must make a cognitive leap between the number and proper type and location of the

accent. Therefore, a need exists for an automated method for translating between Simplified

Chinese, Traditional Chinese, Pin Yin, and English. The need extends to a method for

displaying the Pin Yin with the proper accent marks.

10   Moreover, a need exists for assisting students with learning Chinese vocabulary. Chinese

textbooks typically contain a plurality of chapters covering different subjects. Each subject

presents twenty to thirty Chinese vocabulary words which are related to the subject. The student

then uses the vocabulary words by themselves, then in conjunction with vocabulary words from

previous chapters. Because of the encoding limitations, a computer implemented process for

15   assisting in the development of both Simplified and Traditional Chinese vocabulary has not

previously been developed. Therefore, a need exists in the art for a computer-implemented

method for helping a student learn Simplified Chinese, Traditional Chinese, accented Pin Yin

and English.

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SUMMARY OF THE INVENTION

The present invention is a methodology for helping a student to learn vocabulary in Simplified Chinese, Traditional Chinese, English, and Pin Yin. The method of the present invention is implementable as a computer program on the Internet or on a stand-alone computer.

5 The computer program of the present invention comprises a Selection Program (SP), a Testing Program (TP), and a Character Sizing Program (CSP). The SP allows the user to select a Chinese-English textbook chapter, a question language, and an answer language. The SP then displays the chapter vocabulary for review and runs the TP.

The TP calculates the probability factors for the vocabulary terms and determines a 10 question to ask. Each probability factor is initially set to five and the probability factors affect the probability with which each vocabulary term appears in a question. The TP then displays the question in the question language and the user inputs the answer in the answer language. The TP uses a Simplified Chinese / Traditional Chinese Conversion Table and a Traditional Chinese / Pin Yin / English Dictionary, both of which are encoded in Unicode, to check to see if the 15 answer is correct. If the user correctly answers the question, the TP decrements the probability factor. If the user incorrectly answers the question, the TP increments the probability factor. The TP displays the progress on the screen as the user answers the questions. The TP ends when all of the probability factors are equal to one.

The CSP changes the font size of the Chinese characters so that the user may better 20 distinguish the Characters from one another. The user may run the CSP at any time during the operation of the TP. After the user has finished a chapter, the SP displays the user's progress on a progress screen.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of

5   an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is an illustration of a computer network used to implement the present invention;

FIG. 2 is an illustration of the memory used to implement the present invention;

FIG. 3 is an illustration of the logic of the Selection Program (SP) of the present invention;

10   FIG. 4 is an illustration of the logic of the Testing Program (TP) of the present invention;

FIG. 5 is an illustration of the logic of the Character Sizing Program (CSP) of the present invention;

FIG. 6 is an illustration of the graphical user interface (GUI) of the present invention displaying the user selection screen;

15   FIG. 7 is an illustration of the GUI of the present invention displaying the vocabulary review screen;

FIG. 8 is an illustration of the GUI of the present invention displaying the testing screen for the first question showing a correct answer;

FIG. 9 is an illustration of the GUI of the present invention displaying the testing screen

20   for the second or subsequent question when the previous question was answered correctly;

FIG. 10 is an illustration of the GUI of the present invention displaying the testing screen for the first question showing an incorrect answer;

FIG. 11 is an illustration of the GUI of the present invention displaying the testing screen for the second or subsequent question when the previous question was answered incorrectly; and

FIG. 12 is an illustration of the GUI of the present invention displaying the user's statistics screen.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As used herein, the term "accented Pin Yin" means the Pin Yin phonetic version of the Chinese language with proper accents over the appropriate Roman letters.

As used herein, the term "ASCII" is an acronym for American Standard Code for
10 Information Interchange and means the encoding language for Roman letters, Arabic numbers, control characters, and the various symbols present on a QWERTY keyboard.

As used herein, the term "Big 5" means the encoding language for the Traditional Chinese character set.

As used herein, the term "computer" shall mean a machine having a processor, a
15 memory, and an operating system, capable of interaction with a user or other computer, and shall include without limitation desktop computers, notebook computers, personal digital assistants (PDAs), servers, handheld computers, and similar devices.

As used herein, the term "GB2312" means the encoding language for the Simplified Chinese character set.

20 As used herein, the term "hybrid Pin Yin" means the Pin Yin phonetic version of the Chinese language without proper accents over the appropriate Roman letters, but instead with numbers in or at the end of the word to represent the accent marks.

As used herein, the term "unaccented Pin Yin" means the Pin Yin phonetic version of the Chinese language without proper accents over the appropriate Roman letters.

As used herein, the term "Unicode" means the encoding language developed by the Unicode consortium comprising most of the world's languages including the Simplified Chinese

5 character set and the Traditional Chinese character set.

FIG. 1 is an illustration of computer network **90** associated with the present invention. Computer network **90** comprises local machine **95** electrically coupled to network **96**. Local machine **95** is electrically coupled to remote machine **94** and remote machine **93** via network **96**. Local machine **95** is also electrically coupled to server **91** and database **92** via network **96**.

10 Network **96** may be a simplified network connection such as a local area network (LAN) or may be a larger network such as a wide area network (WAN) or the Internet. Furthermore, computer network **90** depicted in FIG. 1 is intended as a representation of a possible operating network that may contain the present invention and is not meant as an architectural limitation.

The internal configuration of a computer, including connection and orientation of the

15 processor, memory, and input/output devices, is well known in the art. The present invention is a methodology that can be embodied in a computer program. Referring to FIG. 2, the methodology of the present invention is implemented on software by Selection Program (SP) **200**, Testing Program (TP) **300**, and Character Sizing Program (CSP) **350**. SP **200**, TP **300**, and CSP **350** described herein can be stored within the memory of any computer depicted in FIG. 1.

20 Alternatively, SP **200**, TP **300**, and CSP **350** can be stored in an external storage device such as a removable disk or a CD-ROM. Memory **100** is illustrative of the memory within one of the computers of FIG. 1. Memory **100** also contains Unicode Selection Program **102**, Simplified Chinese / Traditional Chinese Conversion Table **104**, Traditional Chinese / Pin Yin / English

Dictionary **108**, User Statistics **110**, and Chinese-English textbooks **112**. The present invention

may interface with Unicode Selection Program **102**, Simplified Chinese / Traditional Chinese

Conversion Table **104**, Traditional Chinese / Pin Yin / English Dictionary **108**, User Statistics

110, and Chinese-English textbooks **112** through memory **100**. As part of the present invention,

5   the memory **100** can be configured with SP **200**, TP **300**, and/or CSP **350**. Processor **106** can

execute the instructions contained in SP **200**, TP **300**, and/or CSP **350**.

In alternative embodiments, SP **200**, TP **300**, and/or CSP **350** can be stored in the

memory of other computers. Storing SP **200**, TP **300**, and/or CSP **350** in the memory of other

computers allows the processor workload to be distributed across a plurality of processors

10   instead of a single processor. Further configurations of SP **200**, TP **300**, and/or CSP **350** across

various memories are known by persons skilled in the art.

In the preferred embodiment, the present invention is a web page accessible from the

Internet. SP **200** starts (**202**) when the user accesses the web page. The user then logs into the

present invention by entering a user name and optionally a password (**204**). SP **200** then presents

15   the user with a list of Chinese-English textbook chapters, question languages, and answer

languages (**206**). The Chinese-English textbooks may be like Chinese-English textbooks **112** in

FIG. 2. The Chinese-English textbooks contain a plurality of chapters in which each chapter

addresses a different subject or theme. The user is presented with twenty to thirty vocabulary

words for each chapter. Thus, by selecting the chapter, the user informs SP **200** of the

20   vocabulary to be tested. The question language is the language in which the present invention

will ask the user questions. The user may select English, Traditional Chinese, Simplified

Chinese, Pin Yin, or any other language known to persons of ordinary skill in the art. The

answer language is the language in which the user will answer the questions. The user may

select English, Traditional Chinese, Simplified Chinese, Pin Yin, or any other language known to persons of ordinary skill in the art. The Graphical User Interface (GUI) for performing step **206** may be like GUI **400** in FIG. 6.

Returning to FIG. 3, SP **200** then displays the vocabulary for the user to review **(208)**. The GUI for reviewing the vocabulary may be like GUI **500** in FIG. 7. Returning to FIG. 3, SP **200** then runs TP **300 (210)**. When the user has completed a chapter or decides to quit TP **300**, SP **200** displays a progress screen **(212)**. The progress screen displays the user's statistics **214** regarding the vocabulary from each of the chapters. The GUI for reviewing the statistics may be like GUI **700** in FIG. 12. Returning to FIG. 3, SP **200** then determines if the user wants to exit **(216)**. If the user does not want to exit, then SP **200** returns to step **206**. If the user wants to exit, then SP **200** ends **(218)**.

Turning to FIG. 4, the logic of Testing Program (TP) **300** is illustrated. TP **300** is a program which tests the user's knowledge of the vocabulary for a specific Chinese-English textbook chapter. TP **300** starts **(302)** when directed by SP **200**. TP **300** then runs CSP **350 (303)**. CSP **350** is a program that resizes the Chinese character size on the GUI. Although CSP **350** is shown at step **303** in FIG. 4, the user may change the size of the Chinese characters at any time while running TP **300**.

TP **300** determines probability factors for the vocabulary terms **(304)**. Each vocabulary term is associated with a probability factor between one and nine. Initially, each vocabulary term is given a probability factor of five. The probability factors are used in computing the overall probability, and thus the frequency, of asking each vocabulary term. In other words, a vocabulary term with a probability factor of four is four times more likely to be asked than a vocabulary term with a probability factor of one. The probability factors are increased when the

user incorrectly answers a question and decreased when the user correctly answers a question (see steps **316** and **318** below). Therefore, the vocabulary terms that the user is less familiar with are tested more frequently than those that the user is more familiar with.

TP **300** then determines a question to ask the user (**306**). TP **300** gets the vocabulary for the chapter from Chinese-English textbooks **308** stored in memory. Chinese-English textbooks **308** may be like Chinese-English textbooks **112** in FIG. 2. TP **300** determines which vocabulary question to ask based on the weighted probability of each question.

TP **300** then displays the question in the question language (**310**). The user enters the answer on the GUI and TP **300** accepts the user's answer in the answer language (**312**). TP **300** then determines if the answer is correct (**314**). To determine if the answer is correct, TP **300** accesses Simplified / Traditional Chinese Conversion table **320** and Traditional Chinese / Pin Yin / English Dictionary **322** to determine if the vocabulary term in the question matches the vocabulary term in the answer. The question vocabulary term and the answer vocabulary term will match if they are the same entry in Traditional Chinese / Pin Yin / English dictionary **322**. Traditional Chinese / Pin Yin / English dictionary **322** is a dictionary, encoded in Unicode, containing entries for all of the Traditional Chinese characters with the accented Pin Yin and English translations. Where there may be more than one meaning for a given user input, Traditional Chinese / Pin Yin / English dictionary **322** gives the most commonly used word for the user input. Alternatively, Traditional Chinese / Pin Yin / English dictionary **322** could give some or all of the meanings for the user input. Traditional Chinese / Pin Yin / English dictionary **322** may be like Traditional Chinese / Pin Yin / English dictionary **108** in FIG. 2.

If either the question vocabulary term or the answer vocabulary term is in Simplified Chinese, TP **300** will need Simplified / Traditional Chinese Conversion Table **320** to translate

the Simplified Chinese into Traditional Chinese. Simplified Chinese / Traditional Chinese Conversion Table **320** is a JAVA™ hashtable, encoded in Unicode, which contains a cross-reference between all of the Simplified Chinese characters and their equivalent Traditional Chinese characters. Simplified Chinese / Traditional Chinese Conversion Table **320** may be like

5   Simplified Chinese / Traditional Chinese Conversion Table **104** in FIG. 2. The data in the hashtable is in the UCS-2 Unicode format. Because there are about 1,250 Simplified Chinese characters, the hashtable contains approximately 2,500 entries – one for each Simplified Chinese character and the Traditional Chinese equivalent.

If TP **300** determines that the answer is correct, then TP **300** indicates that the answer is

10   correct, decrements the probability factor associated with the vocabulary term (**316**), and proceeds to step **324**. The GUI for an incorrect answer may be like GUI **600** in FIGS. 8 and 9. Returning to FIG. 4, if TP **300** determines that the answer is incorrect, then TP **300** indicates that the answer is incorrect, displays the incorrect and correct answers, increments the probability factor for the vocabulary term (**318**), and proceeds to step **324**. The GUI for an incorrect answer

15   may be like GUI **600** in FIGS. 10 and 11.

Returning to FIG. 4, at step **324**, TP **300** calculates and displays the user's statistics **326** for the chapter (**324**). User's statistics **326** may be like user statistics **110** in FIG. 2. TP **300** then determines whether all the probability factors are equal to one (**328**). If all the probability factors are equal to one, then TP **300** proceeds to step **332**. If all the probability factors are not equal to

20   one, then TP **300** determines if the user wants another question (**330**). The user will want another question if the user does not indicate a desire to quit. If the user wants another question, then TP **300** returns to step **303**. If the user does not want another question, then TP **300**

proceeds to step **332**. At step **332**, TP **300** saves the data for the current session (**332**). The data

for the current session includes the User Statistics **326**. TP **300** then ends (**334**).

As part of the present invention, the user may indicate the desired display size of the

Simplified Chinese and/or the Traditional Chinese characters. Because the Chinese characters

5   are encoded in Unicode, the font size of the characters may be easily changed. Previously, users

have been able to change the font size of Simplified Chinese characters if the characters were

encoded in GB2312, but could not display the Traditional Chinese characters. Similarly, users

have been able to change the font size of Traditional Chinese characters if the characters were

encoded in Big 5, but could not display the Simplified Chinese characters.

10   FIG. 5 illustrates the logic of the Character Sizing Program (CSP) **350** of the present

invention. CSP **350** starts (**352**) when directed by TP **300**. CSP **350** then determines whether the

user has selected standard size Chinese characters (**354**). Standard size characters are the default

size characters and are typically twelve-point font size. Persons of ordinary skill may configure

the standard size characters to any font size. If CSP **350** determines that the user has not selected

15   standard size Chinese characters, the CSP **350** proceeds to step **358**. If CSP **350** determines that

the user has selected standard size Chinese characters, CSP **350** displays the Simplified Chinese

characters and/or the Traditional Chinese characters in the standard font size (**356**). CSP **350**

then ends (**370**).

At step **358**, CSP **350** determines whether the user has selected larger size Chinese

20   characters (**358**). Larger size characters are typically sixteen-point font size. Persons of ordinary

skill may configure the larger size characters to any font size. If CSP **350** determines that the

user has not selected larger size Chinese characters, the CSP **350** proceeds to step **362**. If CSP

350 determines that the user has selected larger size Chinese characters, CSP **350** displays the

Simplified Chinese characters and/or the Traditional Chinese characters in the larger font size (360). CSP 350 then ends (370).

At step 362, CSP 350 determines whether the user has selected big size Chinese characters (362). Big size characters are typically twenty-point font size. Persons of ordinary

5 skill may configure the big size characters to any font size. If CSP 350 determines that the user has not selected big size Chinese characters, the CSP 350 proceeds to step 366. If CSP 350 determines that the user has selected big size Chinese characters, CSP 350 displays the Simplified Chinese characters and/or the Traditional Chinese characters in the big font size (364). CSP 350 then ends (370).

10 At step 366, CSP 350 determines whether the user has selected gigantic size Chinese characters (366). Gigantic size characters are typically twenty-four-point font size. Persons of ordinary skill may configure the gigantic size characters to any font size. If CSP 350 determines that the user has not selected gigantic size Chinese characters, the CSP 350 returns to step 354. If CSP 350 determines that the user has selected gigantic size Chinese characters, CSP 350

15 displays the Simplified Chinese characters and/or the Traditional Chinese characters in the gigantic font size (368). CSP 350 then ends (370).

FIGS. 6 thorough 12 illustrate GUI 400, GUI 500, GUI 600, and GUI 700 that may be associated with the present invention. GUI 400, GUI 500, GUI 600, and GUI 700 are examples of the contents of the web page embodiment of the present invention. GUI 400, GUI 500, GUI

20 600, and GUI 700 are also examples of the display of the stand-alone computer program embodiment of the present invention which is operable on a single computer.

Turning to FIG. 6, GUI 400 is illustrated. GUI 400 is an example of a GUI in which the user is presented with a plurality of decisions to make. The user can select a chapter from

chapter menu **402**. The user can also select a question language by clicking on one of the question language radio buttons **404**. The user may also select and answer language by selecting one of the answer language radio buttons **406**. When the user has selected the chapter, question language, and answer language, the user may click the review vocabulary button **408** to proceed

5   to GUI **500**. Alternatively, the user may click exit button **410** to exit the program of the present invention.

Turning to FIG. 7, GUI **500** is illustrated. GUI **500** is a screen that allows the user to review the vocabulary before taking the test. When the user has finished reviewing the vocabulary, the user may click the start vocabulary test button **502** to proceed to GUI **600**.

10   FIGS. 8 through 11 illustrate GUI **600** which performs the testing function of the present invention. Turing to FIG. 8, GUI **600** contains current statistics **602** which may be updated and obtained from user statistics **326** in FIG. 4. Current statistics **602** contains the percent of questions answered correctly and the number of questions with a probability factor of one. GUI **600** also contains question **604** in the question language. GUI **600** also contains a user input

15   field **606**, submit button **608**, and Chinese characters **610**. Chinese characters **610** are the Traditional Chinese characters and the Simplified Chinese characters from the vocabulary list in GUI **500**. GUI **600** also contains standard size radio button **620**, larger size radio button **622**, big size radio button **624**, and gigantic size radio button **626**, which may be used to change the font size of Chinese characters **610**. GUI **600** also contains quit button **612**, which allows the user to

20   quit the testing program.

The user may type English words, Pin Yin words, or Chinese characters directly into user input field **606** and click submit button **608** to submit the answer. Alternatively, the user may click on Chinese characters **610** and the present invention will place the specific Chinese

character in the user input field. Further in the alternative, the user may input a character into user input field **606** utilizing the copy-and-paste operation of a computer. In a copy-and-paste operation, the user highlights the desired character, chooses "copy" from a menu, places the cursor in user input field **606**, and selects "paste" from a menu. The highlighted character then

5   appears in user input field **606**. Persons of ordinary skill in the art are aware of methods for implementing copy-and-paste operations on a computer. The user may also input the character into user input field **606** by any method known by persons of ordinary skill in the art.

As part of the present invention, when the user inputs a character into user input field **606**, SP **200** will recognize the entered character regardless of the encoding format used in the

10   highlighted "copy" text. For example, a user may be viewing another web page written in Traditional Chinese and come across a character the user does not recognize. The user may then highlight the unrecognized character, copy the character, paste the character in user input field **606**, and click submit button **608** to determine the Simplified Chinese character equivalent for the Traditional Chinese character. The present invention accepts the Big 5 encoding used in the

15   other web page because Big 5 is compatible with Unicode. In another example, a user may be viewing another web page written in Simplified Chinese and come across a character the user does not recognize. The user may then highlight the unrecognized character, copy the character, paste the character in user input field **606**, and click submit button **608** to determine the Traditional Chinese character equivalent for the Simplified Chinese character. The present

20   invention accepts the GB2312 encoding used in the other web page because GB2312 is compatible with Unicode. If the present invention was implemented in either Big 5 or GB2312 encoding, the present invention would be limited to either Simplified Chinese or Traditional Chinese, depending on the encoding language. The user may also use the copy and paste

function to input English words, accented Pin Yin, hybrid Pin Yin, or unaccented Pin Yin in the ASCII or Unicode formats.

When the user submits an answer, the present invention determines if the answer is correct. FIG. 8 is an example of a GUI **600** with a correct answer. FIG. 9 is an example of GUI

5   **600** after the user has submitted a correct answer. GUI **600** in FIG. 9 is the same as GUI **600** in FIG. 8 with the exception that GUI **600** in FIG. 9 also contains a statement that the user correctly answered the question **614** and current statistics **602** have been updated.

FIG. 10 is an example of a GUI **600** with an incorrect answer. FIG. 11 is an example of GUI **600** after the user has submitted an incorrect answer. GUI **600** in FIG. 11 is the same as

10   GUI **600** in FIG. 10 with the exception that GUI **600** in FIG. 11 also contains a statement that the user incorrectly answered the question **614** and current statistics **602** have been updated. GUI **600** in FIG. 11 also contains the correct answer **616** to the question and the incorrect answer **618** submitted by the user.

FIG. 12 is an example of GUI **700** used to indicate the user's progress through the

15   chapters of the Chinese-English textbook. GUI **700** contains progress report **702** of all of the chapters. Progress report **702** indicates the number of vocabulary terms with a probability factor of one and the percentage correct for each chapter. The user may return to GUI **400** in FIG. 6 by clicking on the return to main menu button **704**.

With respect to the above description, it is to be realized that the optimum dimensional

20   relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention. The

novel spirit of the present invention is still embodied by reordering or deleting some of the steps contained in this disclosure. The spirit of the invention is not meant to be limited in any way except by proper construction of the following claims.